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FEMORAL ANEURISM CURED BY DIRECT COMPRESSION, WHILE THE PATIENT WAS TAKING ACTIVE EXERCISE; DEATH FROM PERITONITIS SIX YEARS AFTERWARDS.[1]

[WITH PLATE.]

BY BUCKMINSTER BROWN, M. D.,
Surgeon of the House of the Good Samaritan.

WITH AN ACCOUNT OF THE POST-MORTEM APPEARANCES.

BY HENRY H. A. BEACH, M. D.,
Assistant Demonstrator of Anatomy in Harvard Medical School.

THE specimen of femoral aneurism which we have here this evening represents the completion of the history of a case treated and cured by immediate compression; a portion of this history was published in March, 1866. The specimen has been beautifully injected and prepared by Dr. Beach, by whom it will be shown.

This case is, so far as I have been able to ascertain, the only one on record in which the closure of the artery, although commenced while the patient was recumbent, progressed and was completed while he was taking active exercise, and attending for the greater portion of the time to his business, walking and riding to his store, etc.

The aneurism is fusiform in shape, and involves all the coats of the artery. The published report above alluded to was as follows: [2] —

"Mr. E. S., a healthy, muscular man, about thirty-eight years of age, called upon me July 11, 1863. Ten days previously he had first noticed a throbbing in the right groin. This had been gradually increasing. I found a pulsating tumor, about three and a half inches in diameter. The swelling was soft, and the fluid apparently just beneath the skin. Pressing with the finger, the posterior walls could be felt, the end of the finger being surrounded by pulsating fluid. The diagnosis was aneurism of the femoral artery at its exit from the abdomen. Remembering that a suppurating gland in the vicinity of a large artery has sometimes deceived surgeons of even the largest experience, I decided not to alarm the patient, but to await the result of a second examination.

[1] Read before the Boston Society for Medical Improvement.
[2] Boston Medical and Surgical Journal, March 15, 1866.

"Upon a second examination, a few days afterwards, I found the swelling had increased and the throbbing much augmented. The finger pressed upon the tumor was forcibly lifted with every pulsation of the heart. Dr. J. Mason Warren examined the patient July 31, and coincided in the diagnosis, and a trial of the treatment by immediate pressure was decided upon. The patient was directed to stand and walk as little as possible. About this time his health began to fail, and I advised him to go into the country for a short time, and that while there he should gradually accustom himself to the use of weights upon the tumor. He was directed to lie upon his back, and apply a bag of shot weighing ten pounds. Three times a day the weight was to be removed for an hour, and a bag of ice applied. This treatment was continued two weeks, when the weight was increased to fifteen pounds. At the expiration of another two weeks the patient returned to Boston. During these four weeks Mr. S. had obeyed implicitly my directions. The weight had been kept on the tumor day and night. It had caused a good deal of pain, and he had consequently obtained but little sleep. I found, on his return, there was a change for the better; less throbbing, and the tumor somewhat diminished in size. Three times a day he had walked from the bed to the lounge, and this was all the exertion he had made. He was now directed to lie persistently upon his back, and to make no voluntary effort whatever. He was carefully lifted upon the lounge in the morning, and at night carried to his bed. Ice was used for an hour in the night as well as in the day; as a change from the weight, this was a great relief. This course was pursued for some weeks, when, at the suggestion of Dr. Warren, I commenced using cannon-balls, in order to concentrate the weight more accurately over the tumor. The first ball used weighed twelve pounds. In a short time this was doubled, a ball weighing twenty-four pounds being applied. These balls were inclosed in a bag, which was secured to his person in such a manner that it could not slip. The twenty-four pounder at first could be borne only from two to five minutes. The bag of shot, the twelve-pound and the twenty-four pound balls were used alternately for another four weeks. The result was encouraging. The pulsation was less forcible, the tumor had lessened, and its parietes had become hard and comparatively inelastic, and the artery below the aneurism was evidently diminishing in calibre. The patient was now able to bear the weight of the twenty-four pound ball constantly during the day, except when relieved by the application of ice. His diet was carefully regulated; meat was interdicted, and only light, farinaceous food allowed. About this time I discovered a small pulsating tumor on the top of the right foot, at the base of the metatarsal bone of the great toe — probably a dilatation of the arteria dorsalis pedis. This was cured in a short time by pressure with a piece of India-rubber and a bandage. In order to check

circulation in the limb as much as possible, I applied a bandage from the toes to the groin. This afterwards gave place to a firm, silk, elastic stocking, two inches less in circumference than the leg, extending likewise from the toes to the groin. I also had a strong leather belt made to pass round the hips, with a groin strap. By this means I was able to produce powerful pressure upon the bag of shot, which was worn during the night.

"This treatment was continued, with little variation, from October, 1863, to June, 1864. The artery below the aneurism was now extremely small and its pulsation scarcely perceptible. The swelling had much diminished in size, had become hard, and its action comparatively feeble. I now decided to continue the treatment which had thus far been attended with so favorable a result, but to apply my pressure in another form, and, if possible, in such a manner as to admit of locomotion. A wide, strong, firm leather belt was made, thoroughly padded, which was fastened tightly around the hips; to this was attached a strap passing from behind the trochanter to buckles over Poupart's ligament. A pad was adapted to the tumor, hard, oblong, and convex, with a block-tin back. This pad was held in position by the strap passing through loops to the buckles. By these means I found I could apply a very considerable amount of force. These straps having been adjusted, I allowed the patient to sit up and walk a short distance each day. At first his legs were very weak; he rapidly gained strength, however, and was soon able to walk out, and in September, 1865, he began to attend to business, walking once a day from the neighborhood of the Boylston Market to Tremont Row. The pad was so accurately adapted to its intended position, and so firmly held there, that motion of the joint did not displace it, and thus a strong pressure upon the tumor was insured, even during active exercise. He continues to wear the belt and pad night and day, never removing it, except when in the horizontal position, and then only for a few moments for the purpose of bathing the part or to dress the excoriations produced by the belt upon the hips. On my last examination, about three weeks since, the artery below the swelling could not be felt, having, so far as could be ascertained, become obliterated by the constant pressure. The tumor pulsated feebly, had become harder, and had little elasticity.

"The patient was upon his back ten months, and has been under surveillance between sixteen and seventeen months; during the first part of this time the pain and weariness wore upon him somewhat. His health, however, continued good, and his digestion was rarely disarranged. After five months he had become accustomed to the treatment, and began to grow fat; and when he left his chamber he found he had gained twenty pounds during his confinement. I had, it is fair to state, an extraordinary patient to deal with. Mr. S. bore pain, continuing night and day for so many months, with a fortitude and even cheerfulness which could not be surpassed.

"The result of the treatment by pressure in this case is certainly satisfactory. The attendant circumstances were such as, from the first, to indicate an almost hopeless prognosis. The nature of the disease, its situation just beneath Poupart's ligament, must render any operation which might have been attempted exceedingly dangerous. The ligation of the external iliac is an operation certainly not to be undertaken but as a last resort. When, in addition, we consider the aneurismal tendency of the arteries, as indicated by the swelling of this nature on the dorsum of the foot, the aspect of the case was sufficiently discouraging, and a favorable result from an operation could not have been anticipated.[1] To check the flow of blood through the aneurism by pressure applied above was impossible, as the tumor was directly upon the border of the pelvis. The application of immediate pressure in any other way than that employed, as by tourniquet, must necessarily have been attended by disadvantages, and was — after being duly considered — rejected. The course pursued was one which required constant vigilance to guard against excoriation and ulceration of the skin over the swelling, and this, by great care, was prevented. The belt around the hips, which was necessarily tightly strapped in order to obtain a firm purchase for the compressing strap, has from time to time caused sores which have been difficult to heal. There has been no complaint of numbness of the limb, nor any tendency to paralysis. The diseased leg, at the calf, is one and three fourths inches larger than the other."

From March, 1866, the time of the publication of the foregoing paper, compression by means of the pad and straps was continued. I will read a portion of Mr. S.'s memoranda of his case, given in a note addressed to me in 1871. He says, "From January, 1866, to December, 1868, there was no particular change. During that time I was much troubled with soreness caused by the rubbing of the straps. . . . About the middle of December I was taken with a severe pain in the calf of the leg, which afterwards extended through the whole leg. It did not seriously trouble me until the latter part of January (1869). My leg was much swollen at this time, and there was pain in the thigh near the aneurism."

I will here remark that the occurrence of this pain, which was often excruciating, putting the fortitude of even this man of strong endurance to a severe test, received at the post-mortem examination a singularly satisfactory explanation, although it was somewhat difficult to account for at the time. The arteries were injected, and those which entered and nourished the sciatic and anterior crural nerves were found to participate in the general enlargement of all the arteries in the neighbor-

[1] The view of the case stated in the above paper, published nine years since, receives confirmation, if any were needed, from the atheromatous condition of other arteries revealed by the necropsy.

hood. The consequent pressure upon the nerve produced the pain and cramps referred to by the patient. He continues: "The first day of February the pain was very severe, and so continued for several days, and I was very lame and sore. When the pain came on, the tumor measured five inches across and six inches in length. It now increased in size. . . . From that time until April 1st (1869) I had more or less of the pain, and suffered very much. My general health was much affected. My leg was very weak, so much so that I was hardly able to walk. April 5th I went out of the city, and was gone a week. During that time the pain entirely left me. The tumor was still large, and throbbed a great deal. For the next three weeks I was very comfortable; I had no pain; the throbbing continued as before.

"May 2, 1869. Discovered that the throbbing had stopped.

"May 5th. Dr. Brown examined me, and found the aneurism closed up. The leg was very cold and almost lifeless. He ordered it wrapped in flannel and wadding.

"May 10th. I was examined; was not allowed to walk more than was absolutely necessary.

"May 23d. Dr. Brown and Dr. H. J. Bigelow examined me. No circulation could be found in the ankle, but a slight beating in the top of the foot.

"July 31st. Examined by Dr. Brown. A slight beating was found inside the inner ankle; no beating in the popliteal artery; tumor very much reduced, as was also the swelling of the leg.

"September 22d. Examined; all doing well. I was advised to reduce the pad about one half.

"October 28th. Tumor further reduced. A still further reduction of the pad and straps.

"December 14th. Dr. Brown made a full examination; thought me entirely well. The tumor was very much reduced. I was allowed to walk all I felt able. I kept on a portion of the straps and pad during the winter.

"April 28, 1870. Left off all my straps, and have been without ever since.

"May 2, 1871. First anniversary of the closing of the artery. Through the summer of 1870 I got along very comfortably. My leg was weak, and troubled me at times, especially after walking; had something like cramp in it.

"The tumor has diminished in size. It now (1871) measures three and a half inches across and three inches in length, or up and down; it is but little raised. My leg is much stronger; I can take quite long walks with but little discomfort."

From the time of leaving off the compression-pad (May, 1869) to the date of his death, Mr. S. had no further inconvenience from his im-

perforate femoral. On Sunday, February 7, 1875, he was not well, but was at his place of business on Monday morning. On the evening of that day he had a chill, and on Tuesday morning I was called to him. He was then suffering severe distress in the epigastrium, with nausea. This was somewhat relieved in the afternoon; but the next day the pain returned with great intensity in the region of the bladder, and by the 11th symptoms of peritonitis were well pronounced, and continued, uninfluenced by remedies, except in the complete relief of pain by opiates, until his death, which occurred on the 13th.

Dr. Beach made the post-mortem examination, and found the usual results of acute peritonitis; he was enabled to procure the parts involved in the old arterial disease. There were no indications that this had any connection with the acute complaint which proved fatal.

The ultimate success which attended the treatment of the aneurism was undoubtedly due in part to the fact that the compression at first was not sufficiently forcible to entirely occlude the artery, but was such as gradually to diminish its calibre and to allow of the progressive enlargement of the neighboring vessels and the accommodation of the surrounding parts to the new state of things. Likewise the process of nature in producing a spontaneous cure was by this course more strictly imitated. Holmes says[1] that the formation of fibrinous coagulum "seems to require for its commencement a diminution of the circulation, but not its entire stoppage; indeed, it sometimes seems to go on less readily when the stream is stopped altogether." The cure of aneurism of other arteries by digital or other means of compression is of frequent occurrence. When the tumor is situated at or near the origin of the femoral, such a result is more rare. Rapid compression, under chloroform, has recently been attended with some success. Mr. Timothy Holmes, in his lectures published in *The Lancet*, refers to cases in which this method has been applied with a view of curing the aneurism at a single sitting. The risks from gangrene, etc., are stated. In his *résumé* he says, "This record of cases is no doubt extremely encouraging as far as relates to the forms of disease which do not admit of any other operative treatment, except that by ligature of the abdominal aorta, which hitherto has always failed, or of the common iliac, from which only one fourth of the patients operated on have recovered. . . . The total compression of the common or even the external iliac must involve great risk of fatal contusion of the viscera or the peritoneum."[2]

In the case now under consideration the patient was a stout, muscular man, with a considerable amount of adipose tissue. The impossibility of applying digital or instrumental compression to the external or common iliac under these circumstances was too evident to require serious

[1] Holmes's Surgery.

[2] The Lancet, October, 1874.

deliberation. The contra indications to an attempt at cure by ligating the external iliac have been already stated.

Autopsy. — The abdomen was opened thirty-six hours after death, and a large collection of thin pus was found in the peritoneal cavity. The intestines were glued to each other and to the abdominal walls by patches of lymph. The peritonitis seemed to be general, and there was no evidence of its connection with the aneurism. The sciatic, gluteal, obturator, and femoral arteries exhibited patches of calcification. The abdominal viscera, with the exception of their peritoneal surfaces, were healthy. The thorax and head were not examined, as only sufficient time remained for the injection of the arteries in the region of the aneurism and the removal of the specimen. A colored wax injection was thrown into the common iliac artery, and as shown by the specimen it entered the thigh by the internal iliac artery, its branches, and their anastomoses. On dissection the aneurism proved to be fusiform in character, and caused by a gradual expansion of the common and superficial femoral arteries, commencing directly under Poupart's ligament and increasing until its diameter measured two inches; it then as gradually diminished until its calibre corresponded with that of the superficial femoral, the long axis of the tumor measuring two and a half inches. The three coats of the artery could not be satisfactorily demonstrated, owing to their consolidation by the long-continued compression. The cavity made by the arterial expansion was completely filled by a mass of clot, somewhat adherent to but easily separated from its walls. It presented no appearance of lamination on section, but instead, a firmly condensed tissue, irregularly distributed throughout the friable portion, and inclosing the latter in small cavities. The former predominated, and under the microscope presented some indications of organization. The communication which had existed between the artery at either extremity of the aneurism had become entirely closed. No communication between the interior of the aneurism and the deep femoral was detected, though carefully looked for. The femoral vein had been completely closed by the pressure of the aneurism and the means employed for its cure. The first half-inch of the external iliac artery was filled with the injecting material; beyond that point the vessel had dwindled to the usual size of the circumflex iliac. I made an incision into it at the middle of the vessel, to ascertain if it was occluded, and found that a very fine probe passed upward and downward for half an inch; beyond that point it was apparently solid. The superficial femoral was empty, and a probe entered five inches below the aneurism passed readily to within an inch of the latter, but there it met a solid body (the occluded vessel), and would not enter the aneurism. The internal iliac and its anastomosing branches were very much enlarged, the calibre of the vessels varying from twice to three or four times their usual size. A

glance at the specimen, of which the plate gives an anterior view, shows that the main blood supply to the limb came from the gluteal, sciatic, and obturator arteries. The first branch below the bifurcation of the common iliac is the ilio-lumbar, commonly given off from the posterior division of the internal iliac, which, after sending branches to the psoas and iliacus muscles, forms an anastomosis with the circumflex iliac. The latter was filled from the anastomosis to its origin from the external iliac, where the injecting material stopped. The gluteal, after giving off the nutrient artery to the hip-bone, and the lateral sacral, emerged from the pelvis, and divided as usual into superficial and deep branches; the former anastomosing with the sciatic and posterior sacral arteries, the latter terminating in close proximity to the ascending branches of the external circumflex and the circumflex iliac. All the branches of the sciatic were enlarged, and although the anastomoses with the internal circumflex and perforating arteries could not be exactly determined, the close relation of its branches with a large number of branches from the last-named vessels in and between the muscles of the posterior femoral region suggested the probability of their existence. An interesting fact in connection with a varicose appearance and enlargement of the comes nervi ischiadici was the intense pain in the sciatic nerve and its branches, alluded to by Dr. Brown in the history of the case. A similar condition, but not to such an extent, existed in a vessel lying upon the anterior crural nerve, whose branches were also the seat of severe pain. The superior and inferior vesical arteries, and the middle hæmorrhoidal, could be traced as far as their respective viscera, and nothing worthy of note was observed in connection with them. The obturator, after giving off large muscular branches to the interior of the pelvis, sent a large anastomotic branch over the pubic bone to the epigastric branch of the external iliac, and terminal and anastomotic branches through the obturator foramen to the obturator externus muscle, and the internal circumflex and sciatic arteries. The epigastric artery was filled to its origin by its anastomosis with the obturator. The internal pudic, beyond its enlargement, presented nothing worth mentioning. The aneurism closed the origin of the deep femoral, and the latter was filled through its anastomoses with posterior vessels of the thigh. The origins of the external pudic, superficial epigastric, and circumflex iliac arteries were closed by the aneurism.

EXPLANATION OF PLATE.

1. Common iliac artery.
2. Internal iliac artery.
3. Obturator artery sending a branch to communicate with the epigastric.
4. External iliac artery.
5. Poupart's ligament.
6. The interior of the aneurism; shown by partially detaching and turning to one side its anterior wall and removing the clot.
7. Superficial femoral artery.

8. Epigastric artery.
9. Circumflex, perforating, and sciatic arteries, with communicating branches.
10. Circumflex iliac artery.
11. Visceral branches of the internal iliac.

The preparation from which the plate was made has been contributed to the museum of the Harvard Medical School.

RECENT PROGRESS IN PATHOLOGY AND PATHOLOGICAL ANATOMY.

BY R. H. FITZ, M. D.

PATHOLOGY.

Diabetes. — A contribution to the statistics of this affection is presented by Andral.[1] More than eighty-four cases had come under his charge, and an analysis of these showed that the disease was of rare occurrence before the age of twenty years. It then gradually became more common, reaching its maximum of frequency between forty and fifty years, though frequent during the subsequent twenty years. It became exceptional at a later period in life.

In twelve instances the disease began before the age of thirty; in forty cases, between thirty and sixty years; in eight, between sixty and eighty years. The male sex is more prone than the female, fifty-two cases occurring among the former, and thirty-two among the latter.

The influence of the nervous system as a cause of the origin or aggravation of the disease was evident in many cases. A violent impression upon the nervous system was often followed by the presence of sugar in the urine, and in one case, after a moral shock, the amount of sugar was increased from five drachms to three ounces in about twenty-eight ounces of urine.

One patient became diabetic after inhaling ether for its intoxicating effect, for several months; another, after disturbances of sensation, anæsthesia, and other nervous affections. One patient was previously epileptic, another paraplegic. In one case the diabetes was preceded by a blow upon the lower part of the occiput; in another a concussion of the cervical region, resulting from a fall, had occurred. In these two cases the injury to the cerebro-spinal axis was received near the parts to which Bernard calls attention.

A lack of sufficient food was a cause in one case. Three patients had lived solely upon bread and potatoes before they became diabetic. Many became diabetic also who had eaten meat and cheese in addition to an abundant diet of bread and potatoes. In general, the well-to-do classes were more affected than the poor. The previous history and

[1] Allgemeine medicinische Central-Zeitung, 1875, lxx. 858; from Annales et Bulletin de Medecine de Gand, 1875, lii. 5me Série.

appearance of the patients frequently suggested the idea that the disease might be due rather to an excess of nutriment than to its lack. This view, shared also by Bernard, is supported by the fact that the sugar disappears from the urine during the last days of life.

The disease may occur suddenly during apparent good health. Again it was observed in four dyspeptic, eight phthisical, and five asthmatic persons; further, in connection with heart disease, renal colic, and in convalescence from typhoid fever and cholera.

Diabetes may cease momentarily at the outbreak of an acute disease, as was illustrated in a case of febrile angina, and in one of dysentery. The disease may at times be hereditary; sometimes several children in one family may suffer, the parents being free.

The simultaneous occurrence of sugar and albumen was observed only three times in the eighty-four cases. The quantity of the sugar in the urine varied; several patients passed fifteen ounces of sugar in the twenty-four hours, and one over two pounds in the same time. This was not dependent upon the food, and the treatment had often no influence upon the amount of sugar passed. At times the affection lasted for years without any considerable general disturbance; again it pursued an acute course, and death occurred within a few weeks after the beginning of the disease.

The sugar may suddenly disappear, an incident observed in five cases; in four of these the recovery remained permanent, in the fifth epilepsy came on after the disappearance of the sugar.

In almost all the cases the capillary circulation was more altered than in other chronic diseases. This was indicated by the red and swollen gums, injected conjunctivæ, boils, and passive congestion of the lungs, the frequent cause of death. In four cases gangrene was present; of the lungs in one instance, of the extremities in three.

Neither the saliva nor the other secretions showed any alteration.

The change constantly found at autopsies was a congested condition of the liver and kidneys, thought to be due to an increased function of these organs. In almost all cases there was a peculiar density to the spleen, its parenchyma was dry, and beginning tubercles were found in the lungs. These tubercles were regarded as developing under the influence of the debility following the diabetes.

As further evidence of a neuropathic origin for diabetes, the case reported by Mosler[1] may be referred to, where an inflammatory nodular affection of the left cerebellar hemisphere was found. The patient, a man aged thirty-five, always feeble, had suffered from great hebetude, increased hunger and thirst, and the evacuation of large amounts of urine for two and one half years. The legs had been swollen for a year, and cough with stabbing pains in the thorax had troubled him

[1] Deutsches Archiv für klinische Medicin, 1875, xv. 229.

for some weeks. At his entrance into the hospital the sensitive functions, motion, and sensation were completely normal. He died seventeen days afterwards. The inflammatory nodule was of the size of a pigeon's egg; though regarded as the probable cause of the diabetes, no evidence could be obtained as to its origin. It is asserted that every injury to the tracts of vaso-motor nerves [1] may produce diabetes. It is considered that the hepatic vaso-motor nerves are paralyzed, dilatation of the hepatic vessels follows, whereupon an increased flow of blood to the liver and an increased production of sugar result. Diabetes has hitherto been observed after injury to the superior and inferior cervical, and to the superior thoracic ganglia of the sympathetic; further, after every section of the spinal cord from the medulla oblongata to the lumbar vertebræ, where vaso-motor nerves are everywhere present, in part in the tracts of the cervical and thoracic sympathetic, in part in the splanchnics. Mosler regards as favoring his theory of this case Eckhard's statement that diabetes occurs after injury to the vermiform process of the cerebellum of rabbits.

Bernard discovered that ligature of the portal vein is followed by diabetes, and obstruction of the portal vein from pathological causes has been found to be attended with the same condition. MM. Colrat [2] and Couturier [3] thought that in persons suffering from cirrhosis, there might be present a sufficient degree of obstruction to the portal circulation to give rise to diabetes. Four individuals suffering from this disease, the diagnosis being subsequently confirmed by the autopsy, came under observation. The urine was collected while the patients were fasting, also during the period of digestion. The latter alone always contained a greater or less quantity of sugar. The urine of healthy persons under similar circumstances gave negative results. The addition of large amounts of sugar to the diet made no difference. These observations are of interest in connection with the experiments of Seelig, referred to by Dr. Bowditch.[4] It is mentioned also that in two cases where a diagnosis was doubtful, the absence of glycosuria enabled the writers to eliminate the idea of a cirrhosis of the liver; the autopsy showed in the one a tuberculous peritonitis, in the other abdominal cancer.

Typhoid Fever. — The period of incubation of this disease was observed by Quincke [5] in an epidemic occurring under peculiar circumstances. A number of people coming from parts free from typhoid fever met together at a fair, where they had the opportunity of receiv-

[1] Vide Report on Physiology, by Dr. H. P. Bowditch, in the JOURNAL, July 23, 1874.

[2] Revue des Sciences Médicales, 1875, xi. 139; from Lyon Médical, 1875, xv.

[3] Revue des Sciences Médicales, 1875, xi. 139; from Thèse de Paris, 1875, No. 209.

[4] Loc. cit., page 84.

[5] Berliner klinische Wochenschrift, 1875, xxiii. 321; from Correspondenz-Blatt für Schweizer Aerzte, 1875, No. 8.

ing the germs of this disease probably in contaminated drinking-water. In seven cases the disease occurred within from twelve to sixteen days after the visit; in another equal series within from eight to twenty-two days. Another lot of five cases more closely resembled the first series. It seemed further as if the mode of reception of the poison was of influence with reference to the time of incubation. In two cases not belonging to the series mentioned, it was stated to him that the poison had probably been received through inhalation, the patients, boys, having played in infected straw. The period wavered in one case between three and nine days; in the other between one and fifteen days.

The appearance of the brain in typhoid fever has never been regarded as sufficiently explanatory of the grave cerebral symptoms so frequently occurring. The recent histological investigations of Popoff [1] have thrown additional light not only upon the anatomy of this disease, but also upon the pathological processes taking place in the brain. The brains from twelve cases of typhoid fever were examined, and the changes to be referred to were constant. The cortex was infiltrated with small cells resembling lymph corpuscles or the granules of the neuroglia. These were generally grouped in a definite manner, corresponding in form to the arrangement of the nerve-cells, and were often seen to lie around or upon them. Under a high power it was evident that these corpuscles were accumulated within the lymph-spaces surrounding the nerve-cells. Occasionally it was observed that the round cells were inside the body of the ganglion-cell. It was considered that the round cells were wandering cells, which, by virtue of their contractility, had penetrated the substance of the nerve-cell. The ganglion-cells were probably not passive in the process, as a division of their nuclei was evident in various stages. This same division was also observed in nerve-cells which did not contain the wandering corpuscles. Evidence of a division of the body of the cell was also found, and appearances were seen which suggested a breaking up of the ganglion-cells through the entrance of the round cells.

The wandering cells were also found in the peri-vascular spaces, and immediately outside of them in the brain. In the latter they were found along the course of nerve-fibres, especially where these are grouped together as in the corpus striatum and optic thalamus.

Experiments on animals showed that essentially the same alterations could be produced by exciting an inflammation through chemical or mechanical means. When finely divided pigment was injected into the brain it was taken into the ganglion-cells, and a comparison of the results of the injection of the pigment into dead and living brains led to the conclusion that the ganglion-cell was capable of contracting and thus of receiving the pigment within its body.

[1] Virchow's Archiv, 1875, lxiii. 421.

Typhus Fever. — Popoff[1] has more recently examined the brains of three persons dying of this disease. Similar changes to those observed in typhoid fever were noticed; but still more interesting and striking was the formation of little nodules in the cortex of the brain and cerebellum, in the corpus striatum and lenticular body. Under a low power they looked very like miliary tubercles, and very frequently were found next to vessels. They were composed mainly of agglomerations of round cells not to be distinguished from wandering lymph-corpuscles. In certain places these nodules consisted only of such cells; elsewhere there were also elements resembling the nuclei of ganglion-cells, and at times nerve-cells were found imbedded within the mass of indifferent cells. A proliferation of the nuclei of the ganglion-cells, and the presence of round indifferent cells within their bodies, were also observed at the periphery of these nodules, suggesting as probable a direct participation of the ganglion-cells in their formation. The nodules, composed mainly of indifferent cells, were usually found at the periphery of the brain and cerebellum. They were often found as infiltrations of the walls of the blood-vessels and the neighboring tissue, thus giving a further resemblance to tubercles. There was, however, no central degeneration, no giant-cells, nor special stroma. In character and origin they were analogous to the nodules found by Wagner in the liver and kidneys of typhoid fever. They were found in two of the cases only, and in these the cerebral symptoms were very marked, — delirium and cramps, followed by coma and stupor. The patients were young, twenty and twenty-two years of age; the duration of the disease, fourteen days. The case where no nodules were found presented mainly symptoms of excitement, and the duration of the disease was but ten days, the patient being thirty-seven years old.

PROCEEDINGS OF THE OBSTETRICAL SOCIETY OF BOSTON.

CHARLES W. SWAN, M. D., SECRETARY.

THE society met, by invitation of DR. COTTING, at the rooms of the Boston Society for Medical Improvement, May 8, 1875, at 7½ o'clock P. M.

MAY 8, 1875. — The president, DR. HODGDON, in the chair.

Simulated Pregnancy. — DR. COTTING reported the case of a patient about thirty years of age, the mother of two children. She called upon him early in the autumn, and said that she expected to be confined about February 1st, as she had had motion from the middle of September. As she was confident of her sensations, Dr. Cotting made no other remark than that he supposed she was competent to judge of such matters. Her size, which had increased,

[1] Centralblatt für die medicinischen Wissenschaften, 1875, xxxvi. 596.

continued to enlarge; and, everything in her estimation proceeding as it should, she made extensive preparations. When the time came she was apparently of the size indicating full term, and she took her nurse into her house and had everything in readiness for the event. Six weeks after the expected time Dr. Cotting was sent for, and, as the patient had not perceived any alteration during these six weeks, she consented to an examination. This demonstrated that the patient had been wholly mistaken as to her condition, for there were no indications of pregnancy (by digital and other examination), except enlarged abdomen and mammæ. The increase of size proved to be due to a development of adipose tissue. On the abdomen this was exterior to the fascia, but greatly resembled pregnancy in form.

Hydrate of Chloral per Rectum. — Dr. Sinclair inquired if the injection *per anum* of hydrate of chloral caused any remarkable dilatation of the sphincter ani. He said that he had heard of a case in which the dilatation was so great that the hand could be passed into the rectum, during labor, and dilatation of the cervix uteri ensued. The amount used was twenty or twenty-five grains. Dr. Sinclair questioned whether this drug would be of value in cases of rigid os.

Dr. Abbot said that in the case of a gentleman under his care a smaller dose caused no dilatation of the sphincter ani. There was difficulty in retaining the injection until more water was added to the solution.

Dr. Lyman remarked that he had never heard of an injection of chloral causing such relaxation. He said he was much in the habit of using it in the early stages of labor, but not for the purpose of dilating.

Dr. Edson said that in the case of a young man eighteen years old, under his care, there had been no difficulty in retaining an injection of a solution of fifteen grains of chloral administered nightly for three weeks.

A Case of Doubtful Conception. — Dr. Minot reported a case which he had seen that day. The patient is a large, stout, single American woman, aged forty-four. Her last menstruation occurred February 14th, having previously been perfectly regular and normal. She said it was possible she might be pregnant. She had had connection several times about the time of the last catamenia — after, but not before the period. She had no subjective symptoms of pregnancy. The breasts were large, as usual, and the follicles were extraordinarily developed; but the woman said she had noticed this several years ago. Nothing was learned by an examination of the vagina and the abdomen, including the use of the stethoscope. Dr. Minot questioned whether as a general rule the catamenia do not become irregular in time and amount before ceasing.

Dr. Richardson responded that in the lectures which he heard in Vienna he was instructed that when the catamenia stop suddenly it is always with the warning of a very profuse flow.

Dr. Lyman said he thought this inability to decide the question of pregnancy in its earliest stages was an opprobrium of the profession. He gave the case of a young married lady who had had no child for two or three years. The catamenia had been irregular at times. She had generally been nervous and wakeful. During three months there was no menstruation; within this

time she had also been extremely sleepy, and her nervous system had become very quiet. These two things made it probable that she was pregnant.

Dr. Cotting stated that under his observation a number of women, arrived at the critical age, had noticed only that the time after the last period was longer than usual, and that the catamenia never again returned.

Dr. Hodgdon said he had observed a similar case in an Irish patient.

Dr. Abbot said he thought Dr. Minot's patient had hardly gone on long enough to render a decision of the question possible. It is not uncommon, he remarked, for an interval of six months to occur at such a time. As to Dr. Richardson's statement of profuse flowing having an abrupt and complete termination, he had had no corroborative experience. A woman of his acquaintance flows tremendously every two or three months.

Dr. Sinclair remarked that there was an occasional case of great flowing at about the age of puberty, as well as at the close of the catamenial epoch, and that he thought, although he had no data, that at both ends of the scale there was about an equal number of similar cases.

Cases of Simulated Pregnancy. — Dr. Richardson reported a case recently terminated. Some time ago a married woman, aged thirty-nine, was sent to the lying-in hospital for confinement, supposed to be due in two or three days. She had had morning sickness, the abdomen was enlarged, and there was milk in the breasts. She had been unwell every month through the pregnancy, although the show had been very slight. A vaginal examination discovered a uterus of the normal size. Deep pressure over the liver showed it to be much enlarged, nodular, firm. Ascites was present. There had been no jaundice, and thus far no pain. She had had five or six children, and thought she had again had every symptom of pregnancy. Four months later there was an autopsy, revealing disease of the liver.

Dr. Brown said he was called to a patient with the message that she was in labor at full term. He found a young woman, married one year, leaning over a chair, and apparently in a good deal of pain. The catamenia had been unusually scanty for several months previously. The patient had had nausea, and for the past three or four months had felt "motions." The uterus was found to be of the normal size. There was no pregnancy at all.

Dr. Edson mentioned a case similar to that detailed by Dr. Richardson. Two years ago a woman forty-three years old was very positive that she felt motion. She supposed herself to be in the middle of the eighth month at the time she came under Dr. Edson's observation. The menstrual flow was suppressed. The breasts were enlarged, but did not secrete milk. There was extreme jaundice. She died shortly afterwards, but there was no autopsy.

Diagnosis of Pregnancy in its Early Stages. — Dr. Reynolds brought up the subject of the diagnosis of pregnancy, with the question how far an enlargement of the uterus would allow a man to say the patient was advanced to a certain stage in pregnancy. He remarked that he had asked the question at a former meeting of the society. One of the younger members said to him after that meeting that he felt that he had acquired the power of recognizing the state. Dr. Reynolds said that he wondered at the distinct impres-

sions averred by some gentlemen as compared with the extreme indefiniteness in his own case. How many of us, he said, in an examination of a number of patients, half of whom were two months pregnant and half not pregnant, would be able to speak confidently as to the existence of pregnancy, and especially in the case of fat patients, where the difficulty is much increased?

Painless Uterine Contractions. — Dr. Minot reported a case of painless uterine contractions in a woman who had had three children. There were most powerful uterine efforts, so great that the patient held her breath and the tears started to her eyes; but she assured the doctor that there was no pain at all. Dr. Minot said he had looked into several modern authorities without finding any notice of a similar case.

BASTIAN ON PARALYSIS.[1]

Through the labors of ardent workers in the field, the science of cerebral pathology has made some real advances during the past few years, and some new lines of investigation have been opened, along which more progress will yet be made. We heartily welcome Dr. Bastian's book as giving an unusually clear and readable account of the present state of our knowledge of the subject, to which his apparently large experience and good judgment have enabled him to add some new facts and suggestions of interest.

A number of pages are justly given to a description of the distribution of the blood-vessels of the brain, as investigated by Heubner and by Duret.

If we turn to look for the author's opinion on some points of importance which are still under discussion, we find that he accepts the theory of Broadbent to explain the fact that, in cerebral hemiplegia, certain groups of muscles, such as those of the trunk and neck, escape the paralysis which otherwise affects an entire half of the body, namely, that these muscles, from acting always in company with their fellows, are presided over by either side of the spinal cord and of the brain, or by both sides; he believes, moreover, that a similar rule governs the occurrence of sensory paralysis, the functions of sight, hearing, and taste, exercised by bilaterally-acting organs, being much less rarely impaired in hemiplegia than the function of touch, in which one side is oftener concerned alone. To be sure, if the optic or auditory nerve, or one of the corpora quadrigemina, be destroyed, one-sided deafness or blindness may be produced, but to such cases the author does not refer.

The question as to whether lesions in the brain cause paralysis mainly by their direct destruction of certain "centres," as has usually been believed, or, as is maintained by Dr. Brown-Séquard, mainly by their indirect (inhibitory or excitant) action upon distant parts, or perhaps rather upon a special function of the whole brain considered as a diversely gifted unit, is alluded to only for the sake of calling attention to the fact that, in either case, the study of the localization of cerebral lesions is of prime importance, inasmuch as, however

[1] *On Paralysis from Brain Disease in its Common Forms.* By H. Charlton Bastian, M. A., M. D., F. R. S. New York: D. Appleton & Co. 1875.

produced, like results might be expected and are found to follow like causes. This is sound reasoning, and it is no doubt true, as all indeed agree that lesions may act both by direct and by indirect influence; but since, under the latter, the occurrence of anomalous symptoms does not necessarily presuppose the existence of peculiar anatomical conditions, but only the existence of peculiar functional susceptibilities of the nervous centres, unrevealed by any discoverable physical sign, analogous to a susceptibility to taking cold, and the like, it seems to us that those in whose minds it holds a place even equally prominent with the direct-action theory might be led to overlook anatomical points of importance in any given unusual case.

In referring to the well-known experiments of Fritsch (spelt Fritz) Hitzig, and Ferrier, he gives, unjustly as we think, the credit for greater thoroughness to the latter.

The highly interesting experiments upon the cerebral ganglia by Nothnagel, which would have been expressive of the ideas of many of the Germans, among others Meynert, of Vienna, upon an important part of cerebral physiology, are not mentioned.

The description given of aphasia and kindred disorders seems to us to be unnecessarily cumbrous, and not so satisfactory as one published last winter by Dr. Wernecke, of Breslau, reviewed in the JOURNAL for May 20, 1875.

THE CHOLERA EPIDEMIC OF 1873.[1]

THIS plethoric volume is the fruit of a joint resolution adopted by Congress in 1874, authorizing an investigation concerning the causes of epidemic cholera, and more particularly directing the collection of information with regard to the outbreak of 1873. The report is the united work of the Supervising Surgeon of the Marine-Hospital Service, Dr. John M. Woodworth, and of Dr. Ely McClellan, Assistant Surgeon, U. S. A., specially detailed by the surgeon-general for this service. That the task has been faithfully executed by these well-known officers goes without saying. They have brought to the fulfillment of their trust great zeal and undoubted ability; and they have presented a contribution to epidemiography which medical men and sanitary authorities especially will do well to have at hand.

The first article in the volume is on the introduction of epidemic cholera into the United States through the agency of the mercantile marine, with some suggestions of preventive measures. Dr. Woodworth treats his topic concisely, but with great clearness and vigor. He points out the incompleteness of the usual regulations touching the inspection of infected ships, and shows how possible it is to import the cholera poison under the existing system. He maintains that passengers' baggage as well as the passengers themselves may convey the infection from port to port, thus rendering the ordinary quarantine only measurably effective. He proposes as an important preventive measure prompt

[1] *The Cholera Epidemic of* 1873 *in the United States.* Washington: Government Printing Office. 1875.

and authoritative information to threatened ports of the shipment of passengers or goods from a cholera-infected district: this information forwarded to the home government by consular officers might speedily be transmitted to all quarantine stations, whose authorities could then be left free to put into operation such measures as they thought best for the protection of their respective ports. In this connection Dr. Woodworth gives some sensible suggestions concerning quarantine.

With regard to prophylaxis, Dr. Woodworth believes heartily in the mineral acids. He bases his belief in part upon clinical observation, and in part upon what he says is the accepted theory of the cholera poison. Upon this latter point we cannot help feeling that he expresses himself somewhat too broadly, not to say dogmatically. In the course of the nine propositions in which he formularizes his ideas of the cause of malignant cholera, he states that the specific organic poison of the disease requires for its reproduction the presence of alkaline moisture, while favoring conditions for the growth of the poison are found in "potable water containing nitrogenous organic impurities and alkaline carbonates; in decomposing animal and vegetable matter having an alkaline reaction; in the alkaline contents of the intestines." On the contrary, "the poison is destroyed naturally either by the process of growth or by contact with acids: (1) those contained in water or soil; (2) acid gases in the atmosphere; (3) the acid secretion of the stomach. It may be destroyed artificially (1) by treating the cholera ejections, or material containing them, with acids; (2) by such acid (gaseous) treatment of contaminated atmosphere; (3) by establishing an acid diathesis of the system in one who has received the poison." Sulphuric acid fulfills, in our author's view, nearly every indication for the prevention and cure of the dreaded pestilence. Whether or not we accept the alkaline hypothesis, it is gratifying at least to have at hand positive expressions from a high authority.

Dr. McClellan's contribution to the report comprises a comprehensive clinical history of the epidemic of 1873, compiled from the detailed records of more than seven thousand cases of the disease. Included in this portion of the volume are notes of the treatment as prescribed by the physicians under whose observation the cases fell. The greater number of the cases were placed upon the calomel treatment, and it is rather curious to read that better results were obtained from calomel alone than from the combination of this agent with others. The acid treatment resulted in a mortality of only eight per cent., although the author observes that the data are not reliable, the number of cases of this class being very small.

The chapter upon the etiology of the disease is exceedingly interesting. Among the topics discussed here, the subject of the transmission of cholera by means of railroad cars and steamboats is very suggestively treated.

The chapter on the prevention of cholera is a perfect compendium of sanitary teaching. Its thoroughness and good sense commend its perusal to health-authorities everywhere, not only to those of districts infected with the pestilence, but to those also of cities which by their uncleanness invite epidemic disease of every kind.

A considerable portion of the book is devoted to the detailed report of the

epidemic of 1873 as it was observed in the South and West. Necessarily this part of the work is somewhat monotonous, but it contains a multitude of facts which will be of great value in the future for reference.

A complete historical review of the travels of Asiatic cholera, from the earliest to the latest times, occupies nearly two hundred pages of the volume. It is contributed jointly by Dr. John C. Peters, of New York, and Dr. McClellan, the former writing of the epidemics in Asia and Europe, and the latter of those in North America.

Finally, we have *three hundred* pages of bibliography compiled by Dr. John S. Billings, the indefatigable Superintendent of the Library of the Surgeon-General's Office at Washington. It is a most complete and valuable acquisition.

In our brief sketch we have not done justice to this latest and most excellent contribution to the literature of epidemic cholera. We sincerely trust that the national authorities will not be unwilling to distribute the work freely, so that the profession may have the benefit of what we believe to be a volume of great value. D.

FIEBER ON ELECTRICITY.[1]

This little book is an unscientific and wordy puff for electro-therapeutics, calculated rather to mislead than to instruct the uninitiated, and to digust those who have the interests of the truth, as regards this subject, at heart.

We cannot agree with the translator that the general practitioner by reading it can get all the information that the welfare of his patients requires him to possess, nor that the author's object in writing the essay may be gathered from the text, unless indeed that object was to increase his private practice by making an impression on the public.

TRAVELS IN PORTUGAL.[2]

The author of this handsomely printed book has given an entertaining description of his travels through a country which to the ordinary tourist is a veritable *terra incognita*. Physicians will naturally ask the volume for some light upon the question whether Portugal offers attractions in its climate, and otherwise, sufficient to recommend it as a health-resort. In regard to temperature during the winter, the extreme southern part of the country is said to compare favorably with the situations along the Mediterranean at present

[1] *The Treatment of Nervous Diseases by Electricity.* By Dr. Friedrich Fieber, Chief of the Special Division for Electro-Therapeutics of the K. K. Hospital of Vienna. Translated by George M. Schweig, M. D., Member of the New York County Medical Society. New York: G. P. Putnam's Sons. 1875.

[2] *Travels in Portugal.* By John Latouche. New York: G. P. Putnam's Sons. 1875.

frequented by invalids; but in all other respects, the sick man does not find many inducements held out to him in Portugal. Nobody in the kingdom speaks any language save the native exceedingly difficult tongue. And even if the tourist has mastered the dialect, he is prone to use it most fluently in the proverbial Portuguese profanity, the bad roads, bad food, and bad lodgings giving him ample opportunity for proficiency in that direction.

Having settled the question of the sanatory qualities of Portugal, the medical reader will find in the description of the author's adventures very much to amuse and instruct. The book is embellished with photographic copies of sketches representing some of the most striking features of Portuguese scenery.

THE PROFESSION AND THE METRIC SYSTEM.

We showed last week the great disadvantages of our present complicated system of weights and measures, and now we propose to consider whether it is not our duty to take some active part in hastening the reform which is sure to come sooner or later. As is well known, efforts have been made and are still carried on with gratifying success, chiefly among architects and builders, to induce the leading firms to adopt the metric system in July, 1876. Circulars have been sent to every town in the country which numbers eight thousand inhabitants, and favorable replies are coming in from all sides. The system was legalized in 1866, but it is desirable that it should become compulsory, and this, of course, cannot occur without a certain amount of preparation. The first thing to do is to make it familiar to the public, as the importance of the change is hardly appreciated by others than scientific men, and as at first sight it appears a very formidable undertaking to renounce the terms we have known from childhood and to adopt others. The fact, however, that in schools and colleges the new system is already very generally taught will go far towards overcoming this difficulty. At the late meeting of the American Pharmaceutical Association the matter was referred to a committee, but the next meeting does not occur till after July. We do not remember whether the question was discussed at the last meeting of the American Medical Association, but even if it were, the next meeting is so near the time for action that a favorable report would come rather late. Cannot something be done at once by the leading medical societies? Let the matter be discussed, the advantages and practicability of the change be made evident, and the influence of the medical profession be added to that of others. The coöperation of the pharmaceutical profession is requisite for the success of the measure, just as the architects cannot dispense with the assistance of the builders. If the medical societies of the larger cities should agree to adopt the metric system on the fourth of July next, there is, we think, no question that it would supersede the old after the delay and struggle through which all reforms must pass. We commend these suggestions to the consideration of the profession throughout the country, and hope that other medical journals will join us in advocating the change. As long as the reform is effected it makes little difference whence it comes, but we should be proud to find the Suffolk District Medical Society the first to take decisive action.

EXTIRPATION OF THE LARYNX.

A CASE of total extirpation of the larynx, with the hyoid bone, and of a portion of the tongue, pharynx, and œsophagus, was the subject of a paper recently read before the Medical Society of Berlin by Professor B. von Langenbeck. The paper is published in full in the *London Medical Record* of September 15, 1875. The patient was a man aged fifty-seven years, who entered the hospital November 29, 1874, suffering from violent dyspnœa threatening suffocation, attacks of cough attended with a whistling sound, and a cyanotic tint of the face. The next day laryngotomy was performed and a tube inserted. December 10th, an examination revealed distinct enlargement of the larynx, the epiglottis and neighboring structures being so swollen that it was impossible to obtain a view of the cavity of the larynx and of the rima glottidis. Extirpation of the larynx was urged but refused.

July 1st the patient was readmitted to the hospital. Breathing had been carried on with freedom through the tracheal tube, but lately there had been increasing difficulty of deglutition. The larynx and infra-maxillary glands were much enlarged, and a yellowish-red nodulated mass was seen to project behind the root of the tongue. The patient's general condition and strength were satisfactory. The following is Professor Langenbeck's account of his operation: —

"Extirpation of the larynx was performed on July 21st. The patient having been narcotized by chloroform administered through the tracheal fistula, the canula was removed, the opening in the trachea was enlarged downwards, and Trendelenburg's tampon-canula was introduced and fixed into the trachea by pumping air into the India-rubber bag. Anæsthesia was kept up to the end of the operation by administering chloroform through a tube introduced into the canula.

"A transverse incision was made through the skin, two centimetres (0.8 inch) above the hyoid bone, from the inner edge of one sterno-mastoid muscle to that of the other. From the centre of this incision, another was carried in the middle line, over the larynx, close down to the tracheal fistula, the upper cicatrix of which, however, was not divided. The skin was then turned back in two flaps, and the larynx (thyroid cartilage) was laid free. The infiltrated lymphatic glands, with the right submaxillary gland, were then extirpated; the mylo-hyoid, digastric, and hyo-glossus muscles were cut through above the hyoid bone; the lingual artery was exposed and tied; the glands were then removed on the left side, and the left lingual artery was tied. The operation was considerably impeded by the unusual shortness of the patient's neck, and by the fusion of the soft parts with the larynx, probably induced by the long retention of the canula. The stripping off of the soft parts from the thyroid and cricoid cartilages could be only imperfectly accomplished; and the intention of dissecting off the pharynx and the upper end of the œsophagus from the larynx had to be abandoned, as the cancer had invaded the first-named of these parts.

"It being then impossible to preserve the anterior wall of the pharynx and œsophagus, we proceeded to lay open the fauces. The larynx being drawn

forwards and downwards by a sharp hook fixed in the hyoid bone, the point of the tongue was drawn out of the mouth by means of a thread passed through it, and the root of the tongue was cut through about four-fifths of an inch above the hyoid bone. The superior thyroid arteries were then tied, and the lateral wall of the pharynx cut through. Finally, the pharyngo-palatine arches, which were stretched forward by the strong dragging of the larynx, were divided. The external carotid artery, which was drawn forward with the lateral wall of the pharynx, was then laid bare on each side, tied in two places, and cut through between the ligatures. The lingual and hypoglossal nerves were also exposed and divided.

"The larynx now remained connected with the trachea only; and the latter was divided close below the cricoid cartilage, so as to leave the tampon-canula in the tracheal fistula.

"The anterior cervical region, from the chin nearly as far as the manubrium sterni, showed now a large opening, at the bottom of which the spinal column, covered by the posterior wall of the pharynx and œsophagus, lay exposed. The skin of the neck, which had been divided by the transverse incision, was turned over in two flaps, like a collar. The trachea sank downwards, so that the canula lay close above the sternum. At the upper end of the wound were seen the velum palati and the broad wounded surface of the tongue. On inspection through the mouth, the anterior part of the tongue was seen to be quite pale; it had receded from the lower jaw, and was completely immovable.

"The muscles divided and removed in the operation, besides the small laryngeal muscles, were the sterno-hyoid, sterno-thyroid, crico-hyoid, mylo-hyoid, digastric, genio-hyoid, stylo-hyoid, and stylo-glossal; the stylo-pharyngei, glosso-pharyngei, and palato-pharyngei. Forty-one ligatures were applied to vessels, namely, to the external maxillary, lingual, superior thyroid, external carotid, and laryngeal arteries; and both hypoglossal and lingual nerves were divided. Along with the infiltrated lymphatic glands I had removed both submaxillary glands, fearing that these glands, which were apparently somewhat enlarged, might become diseasd.

"Notwithstanding the extent of the wound and the length of the operation, which lasted two hours, there was comparatively little exhaustion. The patient's appearance was good; pulse 80, full and strong; temperature 36.8° Centigrade (98.25° Fahr.). I believe that this is mainly to be ascribed to the circumstance that complete chloroform-narcosis was steadily kept up by the help of the plug in the trachea from the beginning to the end of the operation; that we were able to completely prevent the flow of blood into the air-passages; and that the operation being performed by careful anatomical dissection without any bruising or laceration of the parts, we were able to tie the great vessels before dividing them.

"After the operation was completed, and the patient had awakened from the anæsthesia, some Hungarian wine was given to him through an œsophageal tube, the tampon-canula was removed, and an ordinary strong tracheal canula substituted. In order to prevent the mucus, which was abundantly secreted by the remaining part of the fauces, from coming into contact with the canula, a compress soaked in a solution (one third per cent.) of salicylic

acid was placed round the neck so as to cover the wound. I abstained from attempting to unite the wound in the cervical integuments by sutures, fearing that the stretching of the parts would favor the burrowing of the secretions from the wound between the divided cervical fasciæ. The flaps of skin on the two sides of the neck were therefore simply laid down in place, and supported by the above-mentioned salicylized compress."

Up to July 28th, although there was abundant purulent secretion, the patient's general condition remained good and he was free from fever.

The prepared specimen showed the anterior wall of the œsophagus and pharynx cut through, the larynx cut away from behind, and the hyoid bone sawn through in the middle. The cancerous degeneration had so completely involved the upper division of the larynx, the epiglottis, and the hyoid bone, that it was difficult to recognize the individual parts. The inner surfaces of the cricoid and thyroid cartilages, as far as the laryngeal pouches and the inferior vocal cords, were free. The morbid change began close above the laryngeal pouches, and, in the form of nodulated masses, completely filled the whole upper part of the laryngeal cavity. The arytenoid cartilages and the aryepiglottic ligaments were completely lost in the tumor. The epiglottis was recognizable in a somewhat separate mass, in which some fragments of the œsophagus could still be recognized. The hyoid bone was surrounded by the swelling, which had grown upwards into the base of the tongue.

The anterior surfaces of the thyroid cartilage and the ring of the cricoid cartilage remained quite free from disease. The tongue was divided in front of the papillæ circumvallatæ, and the cut surface showed healthy tissue. The removed larynx, hyoid bone, and tongue were about 4.4 inches long, of which 1.2 inches belonged to the tongue.

The first extirpation of the larynx in man was performed by Billroth, in December, 1873. The patient was dismissed cured on March 2, 1874, able to speak intelligibly by means of an artificial larynx. The second operation, for partial extirpation, was performed by Heine, of Prague, in a case of stenosis of the larynx. The third operation was performed by Dr. Schmidt, of Frankfort, on August 12, 1874; he removed the cricoid, thyroid, and arytenoid cartilages on account of carcinoma of the larynx. The patient died of collapse on the fifth day. In the cases of Heine and Billroth an artificial larynx was adapted soon after the operation, but in Langenbeck's case the large traumatic cavity renders this impossible and it will be necessary to await cicatrization of the wound. Whether, if the case continues to make favorable progress, in the immovable state of the remnant of the tongue the power of swallowing may return, remains to be seen.

MEDICAL NOTES.

— We are happy to announce that the Medical Library Association opened its rooms on Monday last, with a promising display of journals.

— At the recent meeting of the British Medical Association Dr. James Hardie, of Manchester, gave an account of a new rhinoplastic operation, which consisted in the substitution of the upper phalanx of the forefinger for the nasal bones and cartilages, so as to give the required nasal prominence. In the case of a young girl who had lost both nasal bones and cartilages, Dr. Hardie, after failure of other methods, bandaged the arm in such a position as to enable the forefinger to be laid and plastered upon the nasal cavity, in which position the finger was kept for about three months. Gradually the finger became attached to the cavity, and ultimately the upper phalanx was separated from the rest by the forceps. Dr. Hardie's first intention was to employ the finger merely as a substitute for the nasal bones and cartilages, and to lay over it flaps of skin from the face or arm in the usual manner, and to this plan he ultimately returned, although at one time he was so satisfied with its appearance as to think of using the phalanx itself as a substitute for the nose.

— An instance of remarkable persistence of cardiac action after cessation of respiration is reported to the *Medical Times and Gazette* of September 25, 1875, by R. Stewart, M. D., who was called to a gentleman of some seventy-two years, about five o'clock P. M. of July 4, 1872. After prescribing for the fatigue, heat, and pain in the head of which his patient complained, the physician left, but at eight o'clock was again summoned to him and found that he was apparently dead. The jaw had fallen, the eyes were fixed, the body was cool and the head hot; but on applying the ear to the chest the heart was heard distinctly beating twenty-seven times a minute. Artificial respiration was practiced, and air and ammonia blown into the lungs. Under this treatment the heart-beats became more frequent and forcible, but no respiratory effort could be produced. At ten o'clock the heart was still beating, and the attempts to reëstablish respiration so stimulated the heart that a radial pulse became perceptible. The body gradually became cold and rigid and the cardiac pulsations more feeble. Between five and six A. M. of July 5th the throbbing of the heart was very feeble and slow, and could not be accelerated, and a little after eight o'clock there were signs of decomposition by appearance, odor, and lessening rigidity. The patient was evidently dead then; but, as Dr. Stewart well asks, what was he before?

— At the meeting of the American Pharmaceutical Association recently held in this city, the committee on adulterations made an interesting report through the chairman, Mr. Miller. Some suggestive revelations were made. Among other things, it was stated that a New Jersey distiller had frankly admitted to Mr. Miller that all the commercial oils of cedar, hemlock, and spruce made by him and his acquaintances were prepared by putting the branches of the respective trees into the still, with an amount of turpentine proportioned to the price they expected to realize; and prided himself on the superiority of these *distilled* oils over those made by mere admixture with turpentine.

Mr. Miller had on two occasions purchased four cans of oil of lemon, one of which contained but seventy-five per cent. of oil, and the others scarcely thirty-three per cent. These adulterations were becoming common in Europe as well as in this country. A gentleman who claimed to have formerly held responsible positions in two of the largest German houses had shown to Mr. Miller a full line of receipts for mixing and cheapening all the more important oils, which he was anxious to compound in this country. Mr. Miller had also been informed by the official representative of an extensive French firm in Grasse, that all the cheap grades of lavender, rosemary, and red thyme, sent to this country by his firm and other manufacturers, contained at least seventy-five per cent. of turpentine. Some of the adulterations which are of public interest were musk, a caddy of which, weighing nineteen and a half ounces, was proved in an English court to contain only six and a half ounces; French oil of almond, stated on undoubted authority to be obtained exclusively from peach kernels; honey, made by melting cane or other sugar in a decoction of slippery elm bark or a solution of gum and starch; linseed oil, adulterated with hemp, fish, rosin, and mineral oils; beeswax, consisting almost entirely of black earthy matter neatly coated with handsome yellow wax by repeatedly dipping it into the melted wax, and also adulterated with paraffine; castor oil, composed of lard and croton oils, etc.

— The following, recommended by M. Laborde as a new and very advantageous method of preparing raw meat, is given in the *Lyon Médical*. A not very thick broth of tapioca is first prepared, and is then allowed to cool so that it may not cook the meat with which it is subsequently mixed. The meat, having been finely scraped, is diluted with a quantity of cold soup until the mixture is thoroughly made and has the appearance and consistency of a tomato soup. Thus prepared, it only remains to turn in, little by little, the tapioca porridge, stirring it constantly, and there is obtained a perfectly homogeneous broth, in which, when properly made, the meat is so well disguised that the person who eats it, unless previously informed, does not discover it. Under the name of "medicinal porridge of tapioca," raw meat has thus been administered to patients, and has been taken by them with great relish.

— The use of baths in the summer complaint of children is recommended by J. G. Thomas, M. D., of Savannah, Ga., in a communication to the *Medical Times* of September 11, 1875. In entero-colitis where the temperature of the child ranges from 101° to 105°, Dr. Thomas places the patient in a bath of from 70° to 85° for twenty or thirty minutes, and finds the bodily heat will descend to the normal point, or below it, and that the child will go quietly to sleep, and wake in an hour or two much improved. He directs that the child shall be put into a bath of the temperature to which it is accustomed, and then that cold water shall be gradually added until the temperature is reduced to 70° or 75°. In twenty minutes or half an hour the child is taken out, the axillary region dried with a soft towel, and his temperature ascertained. If it is found to be at the normal point, or just below, the child is put to bed, and in an hour the thermometer is used again. If the child's temperature has risen, the bath should be repeated. Sometimes Dr. Thomas has employed the bath re-

peatedly for several days, where the case has been a severe and protracted one.

— One of our French exchanges reports the case of a child of thirteen months, apparently in good health, who was vaccinated July 9th from the arm of a healthy infant. July 11th the child was taken sick with measles. While the eruption lasted, the evolution of the vaccine disease not only remained stationary, but even the traces of the punctures disappeared. July 17th, eight days after the date of vaccination, the points of inoculation reappeared, surrounded with an inflamed areola, and from that day forward the vaccination pursued a perfectly normal course.

— The importance of rightly estimating the influence of the inorganic constituents of drinking-waters on the constitutions of consumers is forcibly presented in a paper by W. J. Cooper, published in the *Sanitary Record* of September 11, 1875. Reference is made to the experiments of M. Papillon, communicated to the French Academy of Science, which showed that not only the food that is eaten by animals affects the composition of their bones, but that mineral matter in dilute solution is capable of being assimilated. The effect of altering the composition of the water-supply of a community may involve questions of vast importance to the organic structure of the human body. If the water contains lime, strontia, or magnesia, these may appear as phosphates of lime, strontia, or magnesia in the bones. Should these salts be deficient, the bones would be imperfectly supplied with mineral matter. By varying a water-supply it might be possible to alter the physical organization of a population, and in future ages, from the examination of the bones of bygone generations, the character of the water they were in the habit of drinking might possibly be deduced. While much attention is now being directed to organic impurity in drinking-water, the inorganic impurities have been almost overlooked, although there are numerous instances where serious consequences have arisen from the incautious use of deep spring-waters. Some time ago at Hendon, in Middlesex, an artesian well was bored to supply water for some valuable horses which were being reared there. The water was sparkling, pleasant to the taste, and quite free from any organic impurity; the foals, however, which drank the water soon died, and the whole stud was seriously affected with diarrhœa. An analysis showed the water to contain sulphates of magnesia and soda in considerable quantity. On discontinuing the use of the water the disease was arrested. At Rugby the water from an artesian well free from organic impurity was hailed with satisfaction at its brightness; the community, however, were attacked with diarrhœa caused by the Epsom salts present in the water, and the supply had to be discontinued, as there is no known method of freeing the water from sulphates. As is well known, goitre and other throat and glandular affections, and even idiocy, have been attributed to inorganic salts in drinking-water. If the entire organic structures of the human body are liable to alteration when excess of mineral matter is introduced into the system, it is important that health-seekers at the various medicinal springs should place themselves under competent medical supervision. One of the first considerations in the inauguration of a water-supply should be to insure a perfect freedom from excess of any mineral except those comparatively harmless ingredients, chloride of sodium and carbonate of lime.

— A paper on black discoloration of the tongue, written by Dr. Féréol, is to be found in *L'Union Médicale* of September 14, 1875. This affection to which MM. Gubler and Raynaud have already called attention, consists in a black discoloration having its seat at the back of the tongue in front of the lingual V, upon the middle part, where it forms another V at the anterior point, without invading the sides of the organ, and where it makes a coating more or less thick which has been compared to the grass beaten down by the rain. M. Gubler in his article on the subject maintained that the discoloration was not due to the presence of parasites; but M. Raynaud, on the other hand, regarded the disease as of parasitic origin, or at least that the presence of spores was necessary to produce the discoloration. Dr. Féréol, however, thinks that the presence of the microphyte is to be considered accidental, or at least as epiphenomenal, and suggests "piliform epithelial hypertrophy" as a name for the disease.

WEEKLY BULLETIN OF PREVALENT DISEASES.

The following is a bulletin of the diseases prevalent in Massachusetts during the week ending October 16, 1875, compiled under the authority of the State Board of Health from the returns of physicians representing all sections of the State: —

The summary for each section is as follows: —

Berkshire: Typhoid fever, influenza, diarrhœa. Very little sickness.

Valley: Typhoid fever, influenza, diarrhœa. It is remarked that fevers are assuming in this region a remittent type, recent years having been especially noteworthy in this respect.

Midland: Typhoid fever, bronchitis, influenza.

Northeastern: Typhoid fever, influenza. Scarlatina is quite prevalent in the eastern part of Essex County. Measles is epidemic in Beverly.

Metropolitan: Typhoid fever, bronchitis, influenza, pneumonia. The epidemic catarrh is more severe and general in this section and in the northeastern than elsewhere. Diphtheria is subsiding.

Southeastern: Typhoid fever, influenza. Not much sickness. Norwood reports diphtheria of a mild type.

The week's returns represent an improvement in the public health of the State at large. None of the diseases have increased in prevalence, but almost all of them have declined somewhat. Their relative order is as follows: Typhoid fever, influenza, bronchitis, diarrhœa, rheumatism, dysentery, diphtheria, pneumonia, cholera infantum, scarlatina, cholera morbus, croup, whooping-cough. Only the first three deserve mention.

F. W. Draper, M. D., Registrar.

COMPARATIVE MORTALITY-RATES FOR THE WEEK ENDING OCT. 9, 1875.

	Estimated Population.	Total Mortality for the Week.	Annual Death-Rate per 1000 during Week.
New York	1,060,000	529	31
Philadelphia	800,000	270	17
Brooklyn	500,000	238	25
Chicago	400,000		
Boston	342,000	187	28
Cincinnati	260,000	73	15
Providence	100,700	38	20
Worcester	50,000	11	12
Lowell	50,000	16	17
Cambridge	48,000	21	23
Fall River	45,000	20	23
Lawrence	35,000	12	18
Lynn	33,000	12	19
Springfield	31,000	11	18
Salem	26,000	6	12

Normal Death-Rate, 17 per 1000.

Books and Pamphlets Received. — A Manual of Minor Surgery and Bandaging. By Christopher Heath, F. R. C. S. Fifth Edition. Philadelphia: Lindsay and Blakiston. 1875. (For sale by A. Williams & Co.)

The Physician's Visiting List for 1876. Philadelphia: Lindsay and Blakiston. 1875. (For sale by A. Williams & Co.)

Lectures on Diseases of the Nervous System. By Jerome K. Bauduy, M. D. Philadelphia: J. B. Lippincott & Co. 1876. (For sale by A. Williams & Co.)

Archiv für pathologische Anatomie und Physiologie, und für klinische Medicin. Herausgegeben von Rudolph Virchow. LXIII. and LXIV.

Annual Report of the Board of Regents of the Smithsonian Institution for 1874. Washington: Government Printing Office. 1875.

Statistics of Mortality from Pulmonary Phthisis in the United States and in Europe. By William Gleitsmann, M. D. Baltimore: Turnbull Bros. 1875.

Climate of the United States considered with reference to Pneumonia and Consumption. By W. D. Bizzell, M. D. (Reprinted from the Transactions of the State Medical Association of Alabama.) 1875.

Transactions of the Wisconsin State Medical Society, 1875. Milwaukee. 1875.

A Report on a Plan for Transporting Wounded Soldiers by Railway in Time of War. By George A. Otis, Assistant Surgeon U. S. A. Washington: War Department. 1875.

Review of Professor Palmer's Statement respecting the Relations of Himself and Colleagues to Homœopathy in the University of Michigan. (Reprinted from the Detroit Review of Medicine, October.)

Transactions of the Medical Society of the State of West Virginia. Wheeling. 1875.

Galeni Libellus quo demonstratur optimum Medicum eundem esse Philosophum. Recognovit et enarravit Iwanus Mueller. Deichert, publisher. Erlangen. 1875.